

DETERRENT STRIP FOR REPELLING BIRDS AND OTHER PESTS

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TECHNICAL FIELD

This invention relates to a pest repelling device, and more particularly to a strip which may be secured to buildings, statues or other objects to discourage birds and other pests from resting thereon.

BACKGROUND OF THE INVENTION

U.S. Patent No. 6,383,064, issued September 4, 2001, discloses a pest repelling device co-invented by the inventor of the present invention.

The device of U.S. Patent No. 6,383,064 relates to an elongated deterrent strip for mounting to an inanimate object to discourage birds and other pests from resting on that object. The strip includes a base of electrically non-conductive material. The strip in lateral cross-section has peripheral edges normally lying in a plane and a raised concave center portion. The base has spaced notches along each edge to provide

flexibility to the base, whereby the base may be bent both out of the plane and within the plane. The strip further comprises two electrically conductive wires secured to and extending over the upper surface of the base, over the notches. The wires are spaced so that a bird's feet will contact both wires when on the base. The wires are connectable to an energy source so that the animal's feet will short the wires when perched on the strip, giving a mild shock to the animal to discourage it from continuing its perch on the strip.

In the device of U.S. Patent No. 6,383,064, the wires are crimped in undulating fashion along the length of the base. One problem resulting from this prior art approach is that strong winds can cause the strip to flap up and down. This causes lengthwise stretching of the strip, including the undulating wires, and the end result is that the product either bends upwardly into an arch or in certain circumstances stretches so far that it sags over the edge of the building or other support surface on which it is mounted. In an attempt to solve the problem the strip has been attached to its support surface along the length thereof at very short intervals, e.g., 12 inches. However, even this does not eliminate the stretching problem.

Other devices are known in the prior art for carrying electric charges for discouraging birds and other pests. Exemplary of the state of the prior art are the devices shown in

the following: U.S. Patent No. 5,850,808, issued December 22, 1998, U.S. Patent No. 3,294,893, issued December 27, 1966, U.S. Patent No. 3,717,802, issued February 20, 1973, U.S. Patent No. 3,366,854, issued January 30, 1968, U.S. Patent No. 4,299,048, issued November 10, 1981, U.S. Patent No. 4,706,941, issued November 17, 1987, U.S. Patent No. 5,163,658, issued November 17, 1992, U.S. Patent No. 5,096,162, issued March 17, 1992 and U.S. Patent No. 2,626,303, issued January 20, 1953.

The prior art indicated above does not teach or suggest the invention disclosed and claimed herein.

DISCLOSURE OF INVENTION

The present invention relates to a deterrent strip for repelling birds and other pests. The strip includes a plurality of wire support members of electrically non-conductive material forming a bendable base. Each wire support member includes two spaced wire support portions and an inner portion disposed between and interconnecting the spaced wire support portions. The inner portions of adjacent wire support members define spaces therebetween.

The deterrent strip also includes two electrically conductive, extensible wires disposed along at least a portion of the length of the base. The electrically conductive, extensible wires are secured to the spaced wire support portions and spaced from one another.

Restraint members are attached to and extend between the inner portions of adjacent wire support members across the spaces defined thereby resisting lengthwise stretching of the strip.

5 Other features, advantages and objects of the present invention will become apparent with reference to the following description and accompanying drawings.

BRIEF DESCRIPTION OF DRAWINGS

10 Fig. 1 is a perspective view of a portion of a strip constructed in accordance with the teachings of the present invention mounted on a support surface;

 Fig. 2 is an enlarged, top, perspective view illustrating details of a segment of the strip, including wire support members, two electrically conductive extensible wires and
15 restraint members associated with the wire support members;

 Fig. 3 is an enlarged, bottom, perspective view of the components illustrated in Fig. 2;

 Fig. 4 is a top, plan view of a segment of the strip;

20 Fig. 5 is a bottom, plan view of the segment shown in Fig. 4;

 Fig. 6 is a frontal, elevational view of a segment of the strip;

Fig. 7 is a greatly enlarged, cross-sectional view of selected components of the strip as taken along line 7-7 of Fig. 4;

Fig. 8 is a view similar to Fig. 7, but illustrating an alternative embodiment of the invention; and

Fig. 9 is a view similar to Figs. 7 and 8, but illustrating a third embodiment of the invention.

MODES FOR CARRYING OUT THE INVENTION

Referring now to Figs. 1 - 7, a strip 10 constructed in accordance with the teachings of the present invention is illustrated. The strip 10 is a deterrent strip for repelling birds and other pests. In Fig. 1, a length of the strip 10 is shown mounted on the ledge 12 of a building, a typical but not exclusive setting for use of the strip.

The strip includes a flexible, bendable base which is comprised of a plurality of wire support members 14 of electrically non-conductive material, for example plastic. Each wire support member includes two spaced wire support portions 16 and an inner portion 18 extending downwardly therefrom. The inner portions of adjacent wire support members define spaces 20 therebetween.

In the arrangement illustrated, the wire support members 14 are integrally connected. The base comprised of the wire support members has side edges and the spaces 20 defined by

the inner portions of the wire support members are in the form of notches extending inwardly from the side edges in alternating fashion. The notches or spaces provide flexibility to the base whereby it may be bent both out of plane and within plane.

5 Strip 10 also includes two electrically conductive wires 22 which are crimped so that they are somewhat extensible to enable the strip to be bent as desired to conform to the shape of the support to which it is secured. This is accomplished by forming the wires so that they undulate lengthwise. The wires
10 may be embedded into the wire support members or secured thereto in some other fashion. When the strip is bent, the undulating configuration of the wires provides them with a certain amount of give so that they will not disassociate from the base when it is bent or when the wires and base expand or contract at a different
15 rate. The spacing between the wires is such that they can be simultaneously engaged by a pest, such as by the feet of a bird. The wires are connected to a source of electrical energy (not shown) and impart a mild shock to the animal so that it moves away from the strip.

20 The structure described above is essentially disclosed in the above referenced U.S. Patent No. 6,283,064 and such an arrangement is subject to undesirable lengthwise stretching after installation, also as described above.

To solve the problem of stretching, in the present invention restraint members are attached to and extend between the inner portions of adjacent wire support members across the spaces defined thereby to resist lengthwise stretching of the strip. More particularly, the restraint members are in the form of flexible, readily bendable, substantially non-linearly extensible connectors 30. In the Fig. 1 - 7 embodiment, the connectors 30 are integral with the wire support members and the connectors and the wire support members are of a single, unitary molded plastic construction. The nature of the connectors 30 is such that they enable the strip to be bent while exerting forces on the wire support members thereof which limit lengthwise stretching of the strip.

Fig. 8 is a view similar to Fig. 7, but illustrating an alternative embodiment wherein the connectors 40 are segments of a single elongated connector member extending through and projecting from opposed ends of the wire support members 14A. The connectors may be affixed to the wire support members 14A by any suitable means such as adhesive or heat bonding.

Fig. 9 shows another embodiment wherein the connectors 50 also comprise segments of a single elongated connector member extending through and projecting from opposed sides of the wire support members 14B. In this instance, attachment to the wire support members 14B is accomplished by enlargements 42 spaced along the single elongated connector member seated in corresponding cavities formed in the wire support members 14B.